STDDS R4.0 Release Notes

July 19, 2018

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2 System Description

The SWIM Terminal Data Distribution System (STDDS) provides Service Oriented Architecture (SOA) interfaces for tower and Terminal Radar Approach Control (TRACON) systems to send terminal events to the NAS Enterprise Message Service (NEMS) for subscription by NAS and non-NAS consumers using SWIM compliant infrastructure and interface standards.

The STDDS interfaces with the Runway Visual Range (RVR) system, Electronic Flight Strip Transfer System (EFSTS), Airport Surface Detection Equipment Model X (ASDE-X) system, Airport Surface Surveillance Capability (ASSC) system, and Tower Data Link Service (TDLS) system at airports to accept, derive and publish airport information.

The STDDS also interfaces with the Standard Terminal Automation Replacement System (STARS) General NAS User Services (GeNUS) interface at TRACONs and the SWIM Flight Data Publication Service (SFDPS) at ARTCCs.

Detailed information about the Release R4.0 STDDS services, including Java Message Service Design Documents (JMSDDs), schema, sample data and site data availability can be found in the NAS Service Registry Repository (NSRR).

3 Summary of Release R4.0 Changes

STDDS R4.0 includes the following changes:

- All Services:
  - Message header namespace update
  - Direct publication to NEMS Solace appliances to improve reliability
  - Improvements to help detect lost messages
  - Changes to ensure original source data can be recovered
- SMES, TAIS, TDES:
  - Integration of SFDPS flight plan data to add correlated GUFI in SMES, TAIS, TDES
- SMES:
  - Addition of airportId to SurfaceMovementEvent message body
  - Removal of gnd (Ground Indicator) field
  - Update to SVT filtering
- TDES:
  - Publication of filtered TDES data
  - Receipt/publication of TDLS D-ATIS messages
- TAIS:
  - Additional STARS message batching to decrease bandwidth needs

Not all R4.0 changes/enhancements are included, only those deemed important to STDDS consumers.

4 Details of changes

4.1 Message Header Namespace Changes and Version Property Update

In R.4.0 The schema has been modified to use a defined-prefix namespace to a default namespace due to the JAXB upgrade from Java 1.6 to 1.8.

The namespace in the message headers will increment to from v3-0 to v4-0 to reflect the version change.

For example, for SMES
urn:us:gov:dot:faa:atm:terminal:entities:v3-0:smes:surfacemovementevent
will increment to
urn:us:gov:dot:faa:atm:terminal:entities:v4-0:smes:surfacemovementevent

The version property in the header will also change:
version=3.0
Will increment to
version=4.0

Affected Services	Affected Message Types	Schema changes?	User changes required?
All	All	No	Yes, to identify relevant schema

4.2 Direct publication to NEMS Solace appliances to improve reliability

STDDS R4.0 will support publication to the NEMS Solace Appliance. Interested users can update their ActiveMQ subscriptions to Solace, though that change is not mandatory.

Affected Services	Affected Message Types	Schema changes?	User changes required?
All	All	No	No

4.3 Addition of Message Sequence ID to help detect lost messages

STDDS R4.0 adds the msgSeqID, an improved version of the queueID found in prior releases, to the header of all messages. This field is a message sequence identifier within a data stream and can be used to determine out of order and missing messages.

Affected Services	Affected Message Types	Schema changes?	User changes required?
All	All	No	No, but recommended

			that users ingest it

4.4 Improved SMES/TAIS Data Precision

STDDS R4.0 improves the data field precision of several SMES/TAIS fields, so that STDDS data can be transformed to the values from the original source system (ASDE-X, ASSC, STARS) value with no loss in precision.

Updates include retaining the source system precision of the positionReport.time field in SMES AT messages to three decimal point and adding new fields containing original format (precision, units) of Vx, Vy, and vertical velocity for TAIS.

Affected Services	Affected Message Types	Schema changes?	User changes required?
SMES, TAIS	SurfaceMovementEvent, ASDEXPositionReport, MLATPlotReport, ADSBPlotReport, TATrackAndFlightPlanData	Yes	No, but recommended

4.5 Integration of SFDPS flight plan data to add correlated GUFI in SMES, TAIS, TDES

STDDS R4.0 will receive SFDPS flight plan data for each associated Air Route Traffic Control Center (ARTCC) and correlate input data from ASDE-X/ASSC, EFSTS, TDLS and STARS with the retained SFDPS Flight Plan Data to enhance the TAIS, SMES and TDES published outputs. This enhancement allows correlation between allow correlation between STDDS data and data published by other SWIM services (e.g. SFDPS, TBFM, TFM, etc.).

The SFDPS data used to enhance each message follows in the chart below. Note that all SFDPS data elements may not be available for each STDDS message.

Service	Message	ERAM GUFI	SFDPS GUFI	Dep Airport	Arr Airport	AC Type	Beacon Code
SMES	SurfaceMovementEvent	✓	✓	✓	✓		
SMES	ASDEXPositionReport	✓	✓	✓	✓		
TAIS	TATrackAndFlightPlanData	✓	✓	✓	✓		
TDES	TowerDepartureEvent	✓	✓		✓	✓	✓

The STDDS and ERAM GUFIs will be included in all delta encoded messages to ease data correlation.

The fields derived from SFDPS can be marked as potentially stale due to interruption in the flow of flight plan data (either an interruption in the connection between STDDS and SFDPS or if an SFDPS ARTCC status is not “up”). Once STDDS receives a flight plan update, it ceases tagging the data as potentially stale.

Please note that SFDPS enhancement of SMES data in R4.0 will not be available for ASSC source sites (KSFO, KCLE, KANC, KMSY, KPIT, KCVG, KMSY KPDX), as the changes needed to support this functionality will not be available by the time that R4.0 deploys.

Affected Services	Affected Message Types	Schema changes?	User changes required?
SMES, TAIS, TDES	SurfaceMovementEvent, ASDEXPositionReport, TATrackAndFlightPlanData, TowerDepartureEvent	Yes	No but encouraged

4.6 Addition of airportId to SurfaceMovementEvent message body

STDDS R4.0 adds Airport Identifier to payload of SurfaceMovementEvent messages, in addition to the header.

Affected Services	Affected Message Types	Schema changes?	User changes required?
SMES	SurfaceMovementEvent	Yes	Yes

4.7 Removal of gnd field

STDDS R4.0 removes gnd (Ground Indicator) field from the ASDEXPositionReport because ASDE-X no longer supports this data field for CAT11 data.

Affected Services	Affected Message Types	Schema changes?	User changes required?
SMES	ASDEXPositionReport	Yes	No

4.8 Publication of filtered TDES data

For STDDS R4.0, TDES is pending FAA approval for external release, which will add a non-sensitive TDES feed for non-NAS users. As with filtered SMES and TAIS feeds, records pertaining to sensitive flights are removed from this feed. Users may subscribe to TDES via their EES contact.

Affected Services	Affected Message Types	Schema changes?	User changes required?
TDES	TowerDepartureEvent	No	No, but must subscribe to receive data

4.9 Receipt/publication of TDLS D-ATIS messages

STDDS R4.0 adds the TDLS D-ATIS message to the TDES feed. For more information on the D-ATIS message please see the R4.0 TDES JMSDD.

Affected Services	Affected Message Types	Schema changes?	User changes required?
TDES	DATISData	Yes	Yes, to consume D-ATIS message

4.10 Additional STARS message batching to decrease bandwidth needs

STDDS R4.0 enhances TAIS TATrackAndFlightPlan batching mechanism to reduce output bandwidth.

Affected Services	Affected Message Types	Schema changes?	User changes required?
TAIS	TATrackAndFlightPlanData	No	No

4.11 SVT Only—sendTo value updated from "filtered" to "anonymized"

STDDS R4.0 SVT feeds (SMES, TAIS) update the treatment of sensitive flights, from "filtered" to "anonymized." "Anonymized" position reports will be visible in the SVT feed (rather than discarded as "filtered") but sensitive fields such as Aircraft ID, Aircraft Type, Beacon Code, Mode 3A Code, will be obscured and replaced with the text "ANON."

SVT is only available to NAS users.

Affected Services	Affected Message Types	Schema changes?	User changes required?
SMES, TAIS, via SVT	SurfaceMovementEvent, ASDEXPositionReport, MLATPlotReport, ADSBPlotReport, TATrackAndFlightPlanData	No	No